# AIMD Lemoore

## CDR CJ Jaynes

## Officer In Charge

# nnual Report of Lean Implementation

## CY 2001

March 20, 2002

# Beginning the Lean Journey at AIMD Lemoore

**It has been said that a long journey must begin with that first step. Here at AIMD Lemoore we have begun our Lean journey by taking that first step. We have experienced improved performance throughout AIMD as a direct result of the various processes that have been improved and the Lean training that has been accomplished in CY 2001. The primary method of process improvement this year has been the use of Accelerated Improvement Workshops (AIWs) being conducted in partnership with representatives from the Boeing Lean Enterprise Office. Detailed information of the various improvements is contained in the following pages. There is one purpose for this lean journey – IMPROVE FLEET SUPPORT.**

**This journey will continue and expand in CY2002. Process improvement is a continuing way of life at AIMD Lemoore.**

**CDR CJ Jaynes**
**Officer In Charge – AIMD Lemoore**

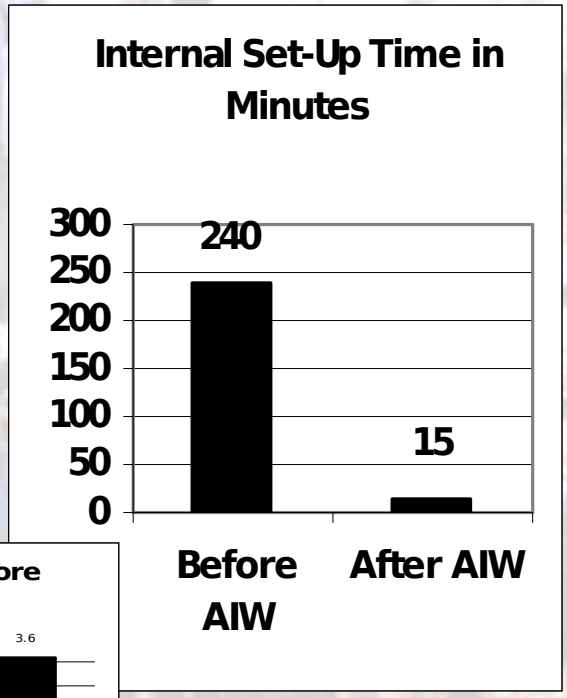
# Summary of Accomplishments for CY 200

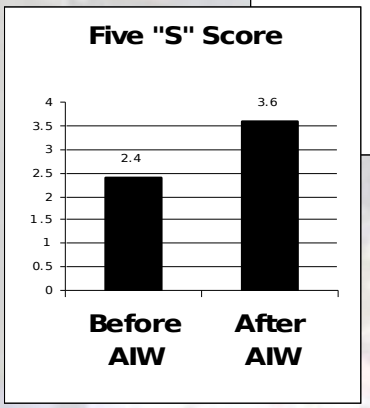
- Conducted Twenty Accelerated Improvement Workshops throughout AIMD Lemoore on both production and production support processes.
- Prepared both Current and Future State Value Stream Maps for 400 Division, Powerplants.
- Eleven AIMD Representatives have completed the Boeing AIW Leader Certification Process and Seven have been awarded Certificates of Completion by Boeing.
- F/A-18 Lean Day Training provided to approximately 130 AIMD Representatives the week of 16 July.
- Created the AIMD Stoplight Status Charts to visually display the current status of the entire AIMD Operations

400
Division

# AIMD Lemoore - Power Plant Division
## High Pressure Compressor Module

## Metrics




## Major Accomplishments

- Eliminated one safety issue by identifying emergency electrical shut-off process.
- Rearranged the shop floor to create a HPC Production Flow process.
- Developed HPC Part Kit Carts which will reduce internal set-up time from 240 minutes to 15 minutes.
- Implemented small dedicated overhead lifting devise for Stator Stack-Up process.
- Implemented air driven torque wrench

**Focus** Assembly Set-Up Reduction and HPC Production Flow

# AIMD Lemoore - Power Plant Division Factory Flow

## Major Accomplishments

- Developed Production Floor mock-up, both before and after
- Demonstrated Product Flow
- Rearranged Production Floor to match Product Flow Mock-up
  - 41U Engine Teardown and Build-Up
  - Fan, HPC, Compressor, AB, LPT, HPT and Combustor Shops

  Flow modules directly from 41U to applicable work center for
  teardown, inspection and repair
- Move engines internally with trailer instead of crane if feasible.
- (Safety Item) Identified and corrected engine rail

**Establishing Product Flow Throughout the Entire Production Process**

# AIMD Lemoore - Power Plant Division Afterburner Shop

## Major Accomplishments

- Established an Afterburner teardown production flow line
- Established an Afterburner build-up production flow line
- Rearranged Production Floor to implement Afterburner flow
- Reduced floor space requirements by 350 sq ft.
- Prepared draft of improved work package checklist to clearly define standard operations. Operator Cycle Time was reduced from 1,200 minutes to 750 minutes.
- Developed an improved inspection process incorporating scaled measurements in the inspection eye loupe.

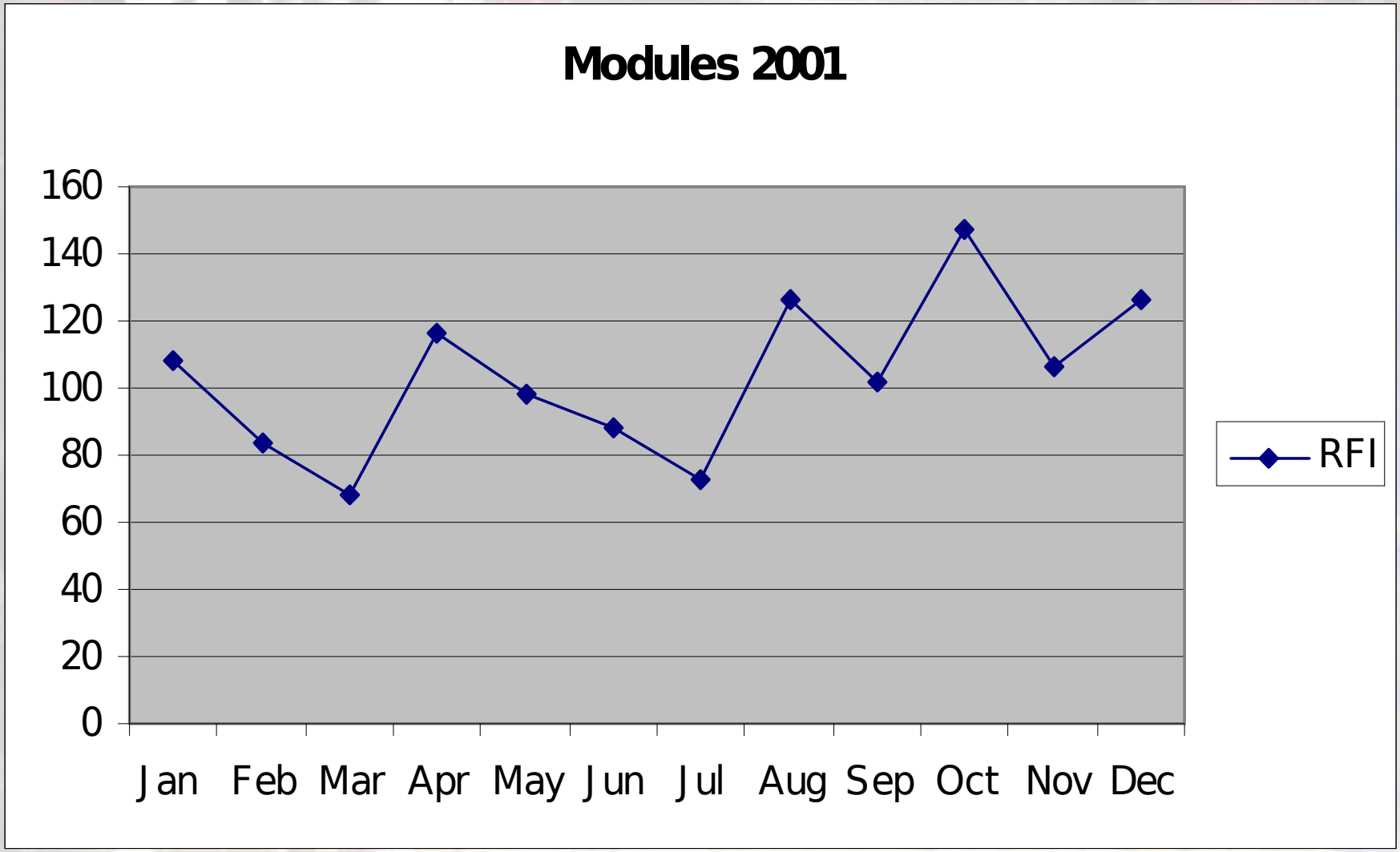
Establishing Standard Work Throughout the Afterburner Process

# AIMD Lemoore - Power Plant Division Fan Shop

## Major Accomplishments

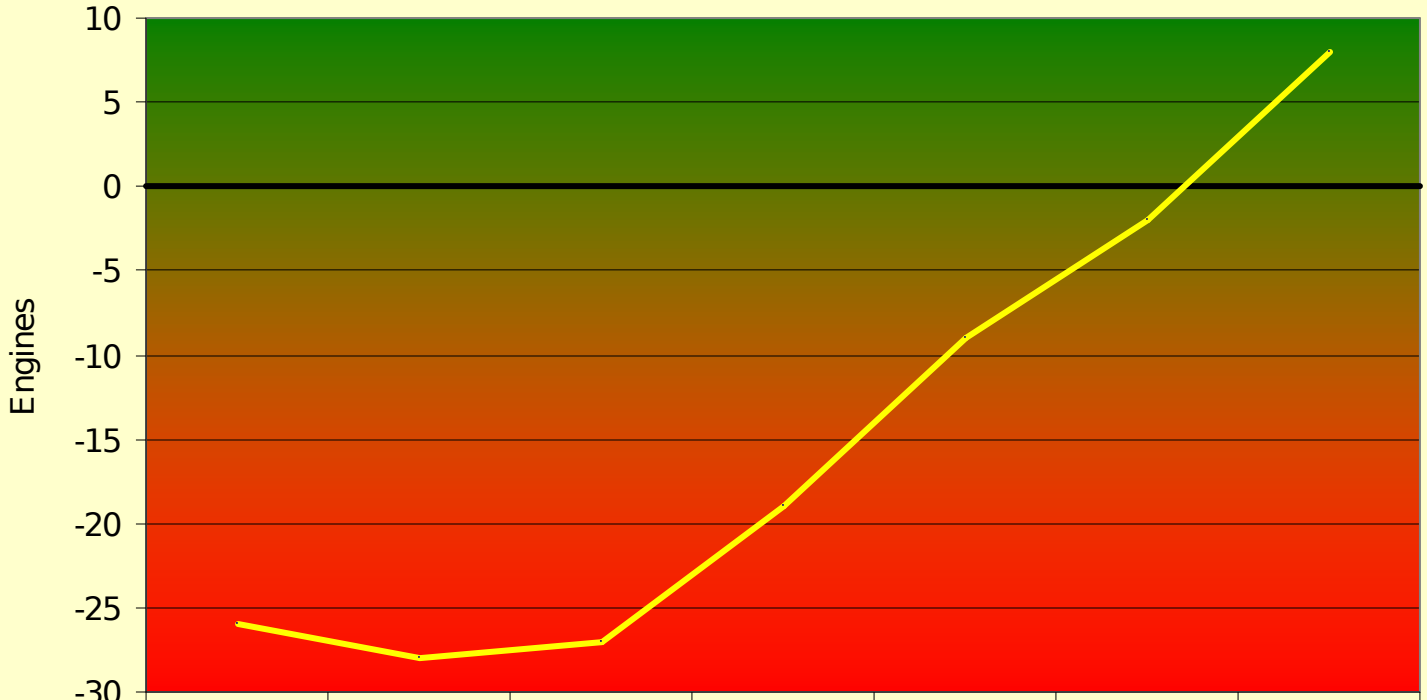
- Rearranged Production Floor to establish visible product flow
- Implemented part kitting and kit delivery process
- Sub-custodied IMRL gear to work center
- Improved teardown process by implementing air driven wrenches.
- Reduced build-up operator cycle time from 408 minutes to 305 minutes. Reduced teardown operator cycle time from 82 minutes to 40 minutes
- Foot printed the entire deck.
- (Safety Items) Secured workbenches and locked down hoist tool

Parts Kits in
400 Division




**Delivering a steady supply of RFI Engine Modules**

# F/A-18 Engine Availability
# 400 & 402 Series




| | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan |
|---|---|---|---|---|---|---|---|
| Engines | -26 | -28 | -27 | -19 | -9 | -2 | 8 |

**Reducing the Bare Firewall Count**
**Providing a Pool of RFI Engines for the Fleet**

# AIRFRAMES 500 Division

## Mission

**To provide a full range of the highest quality maintenance in the repair, testing, fabrication, and adornment of hydraulic/pneumatic structural components, in support of Strike Fighter Wing U.S. Pacific Fleet.**

## “Service to the Fleet”

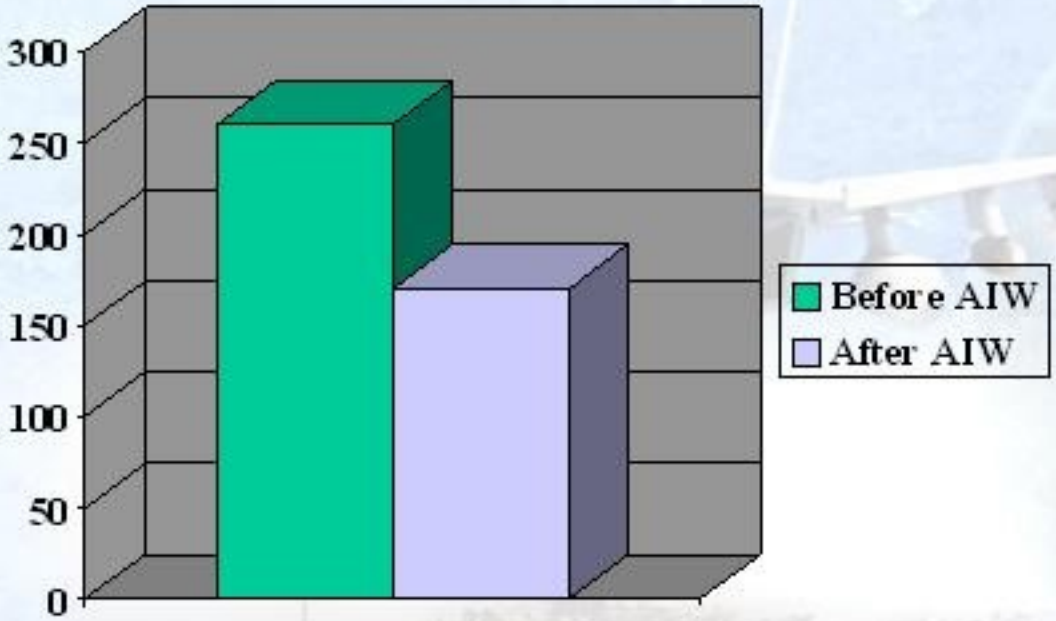
**Components are placed on the shelving in a specific location, allowing for a visual identification of the component's status in the repair cycle.**

## Component Induction Area

**All components entering or leaving the work center are screened and logged in this area.**

## Awaiting Maintenance Shelving

**Left side is newly inducted items and the right side is for components received from the Awaiting Parts locker.**




Walking steps needed to complete a task from beginning to end.

**Hydraulic Work Center Component Flow**

**Standard Operating Procedure**

**1.** CDI screens component and verifies TD incorporation, logbooks and records IAW 4790 Vol 1 Chap 14, Para 14.4. Verify TD's IAW NAT02.
CDI Signature _____

**2.** Electrical check performed (as required)
Signature _____

**3.** Initial test performed (Complete the testing cycle, do not stop at first fault). 100 percent Inspection. Staple the STS tape to this document (if applicable).
Signature _____

**4.** Tear Down Performed (Ensure a 100% Inspection of all parts, **Our goal is to order only one time**).
Signature _____

**5.** AWP as Required (Order only what is needed and verify part numbers).
Signature _____

**6.** Verify all parts ordered have been received. Note location of parts: _____.
Signature _____

**7.** Build Up performed
Signature _____

CDI In-process _____

**8.** RFT/RFI Test bench run performed
Signature _____

**9.** CDI Pass / Fail (Circle applicable)

Reason for failure:
_____
_____
_____

# Component Flow Standard Operating Procedure

## Instituted as a tool to track the flow of the component through the work center and identify when and how a quality deficiency was introduced.

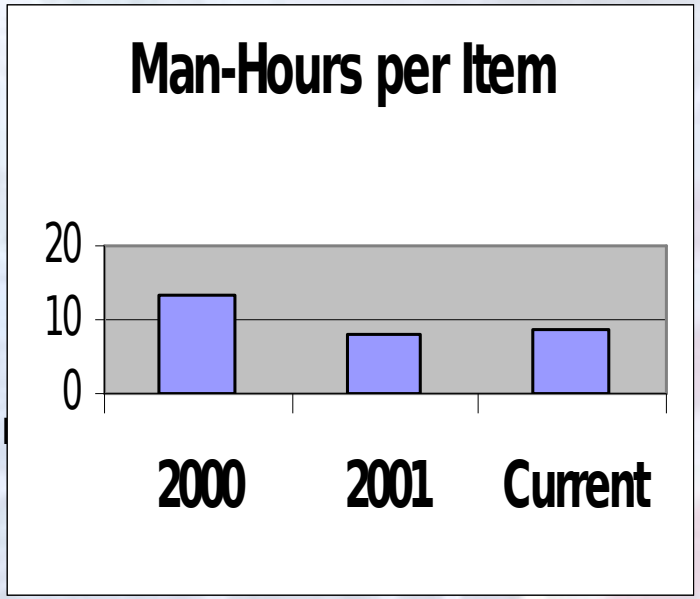
# Avionics Division

# AIMD Lemoore - Avionics Division Radar Shop

## Major Accomplishments

**PROCESS IMPROVEMENTS**

· Created maintenance SOP for use of MAMs (WRA AWP once)
· Created NALCOMIS Training Binder
· Implemented Work Center Improvement




**SHOP ORGANIZATION IMPROVEMENTS**

· Developed new shop floor layout
· Designated HAZMAT area
· Major offload of unused/unneeded equip

**BENEFITS**

· Standardization of the maintenance process, ultimately increasing production efficiency while decreasing turnaround time by 28 percent.

**Maintenance Process Improvements combined with Shop Organization**

# AIMD Lemoore - Avionics Division FLIR Shop

## Major Accomplishments

**PROCESS IMPROVEMENTS**

- Co-located all TPSs, fixtures and cables (on 27 shelves)
- Implemented Production/Bench Status Board
- Implemented WRA teardown and build-up area

**SHOP ORGANIZATION IMPROVEMENTS**

- New shop floor layout
- Major offload of unused/unneeded equipment

**BENEFITS**

- Reduced overall backlog by 15 percent.

**Dedicated Overhaul Area combined with Shop Organization**

# AIMD Lemoore - 600 Division Calibration Laboratory

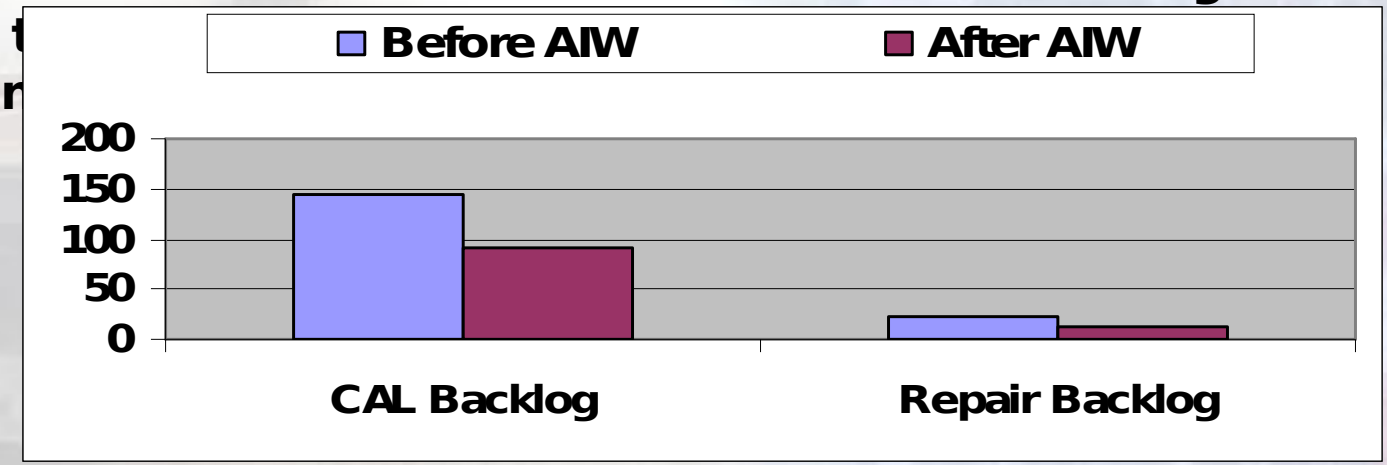
**Major Accomplishments**

· Established induction process flow

· Established a calibration and technician production priority system.

· Updated Local Command Procedures to reflect changes.

· Defined t
technician




·**BENEFITS**

· Reduced calibration backlog from 144 to a daily average of 92 items.

· Reduced repair backlog from 22 to a daily average of 12 items.

**Product Flow Improvements combined with Shop Organization**

# AIMD Lemoore - 600 Division
# 650/69A A-codes

**Major Accomplishments**

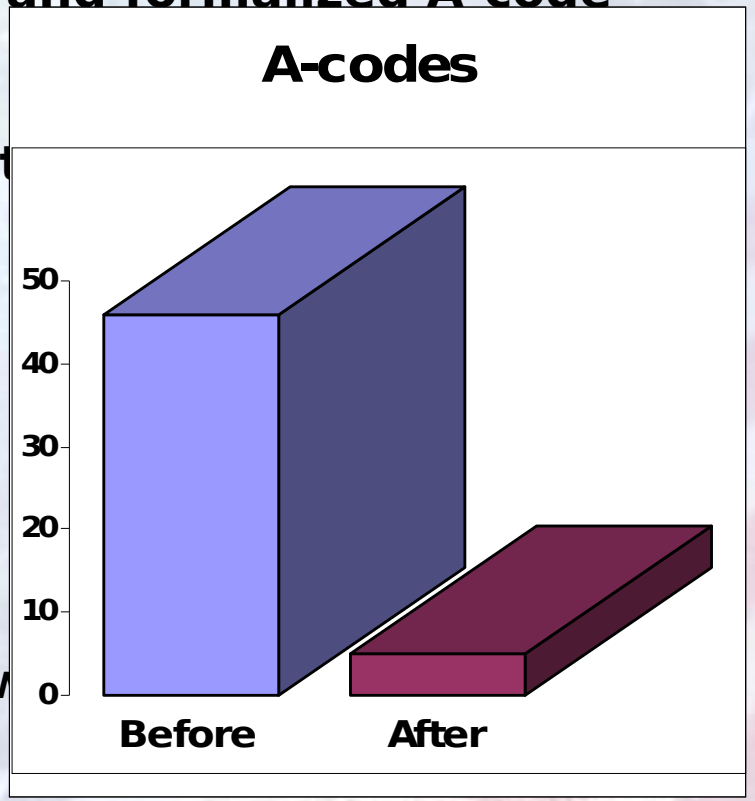
· Identified root causes of A-codes.

· Established SOP for 650 maintenance and formalized A-code procedures for 69A.

· Streamlined maintenance areas.

· Designated areas for Test Program Set

· Created MAM verification/status tags.




**BENEFITS**

· Reduced repair time by an average of

· Reduced monthly A-codes from 46 dow

**Maintenance Process Improvements combined with Shop Organization**

# 700 DIVISION

Lean Implementation

# DIVISION RELOCATION

- Utilized model of new building built to scale for planning purposes
- Storage area designated
- Work areas designated
- Moved from old location 15,000 sq ft.
- To new location 44,000 sq ft.
- Storage racks utilized to segregate all items of armament equipment

# IMPLEMENTATION RESULTS

- **Improved stowage organization**
- **More efficient issue/receipt procedures**
- **Faster turn around time**
- **Easier inventory control / visual/physical inventory of assets**
- **Improved customer service**

71A Receiving Area

Ready for Issue

71D Rack/Launcher Repair

71C Pylon Repair

Preserved Ready for Shipment

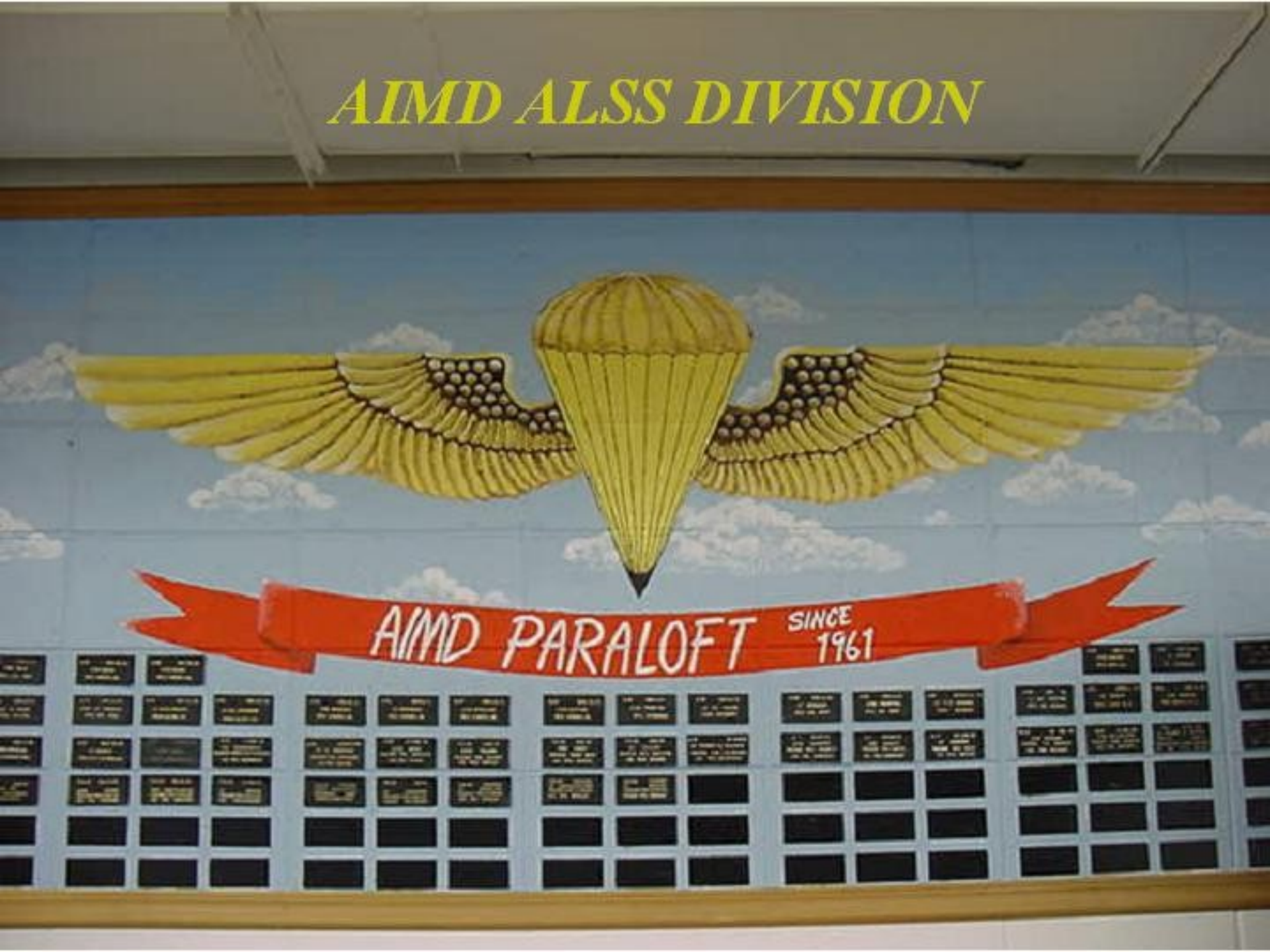
# 700 Division Work Center 71D

Before

After

- Parts Organization
- Visual Inventory
- FOD Prevention

# AIMD ALSS DIVISION

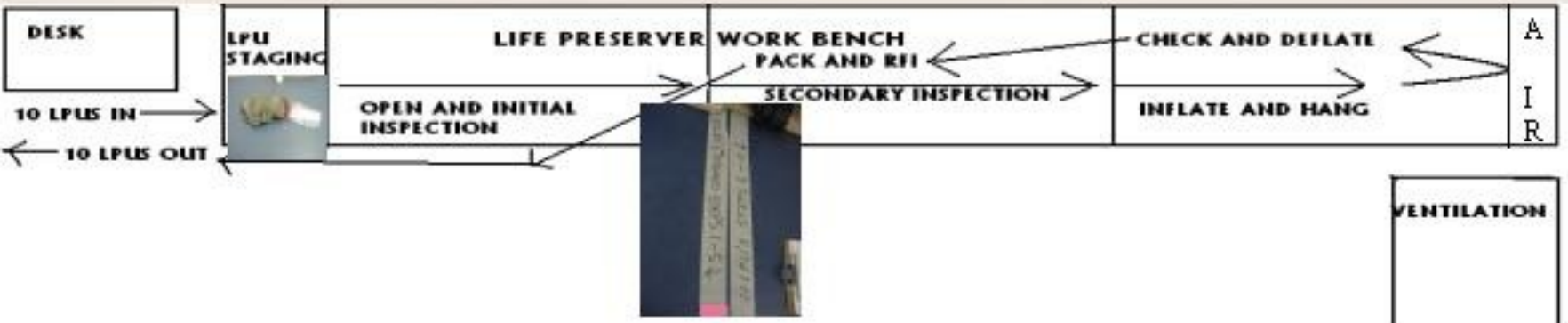


# 800 ALSS DIVISION

## ACCOMPLISHMENTS

- Established process flow and implemented SOP.
- Labeled several trays identifying CO2 Cylinder status.
- Created three work cells- Life Preservers, Seatpans and Anti-exposure assemblies.
- Created a daily/weekly/monthly performance chart
- Identified items for removal from the workspace
- Trained personnel in eliminating waste in process flow
- Kitted test bench hoses utilized by test bench
- Reduced foot traffic by 25%.
- Implemented Point Of Use (POU) positioning of manuals and preops.
- Reduced EXREP inductions from seven in the first six months to zero for the last six months of the year.

# PROCESS FLOW OF LIFE PRESERVERS

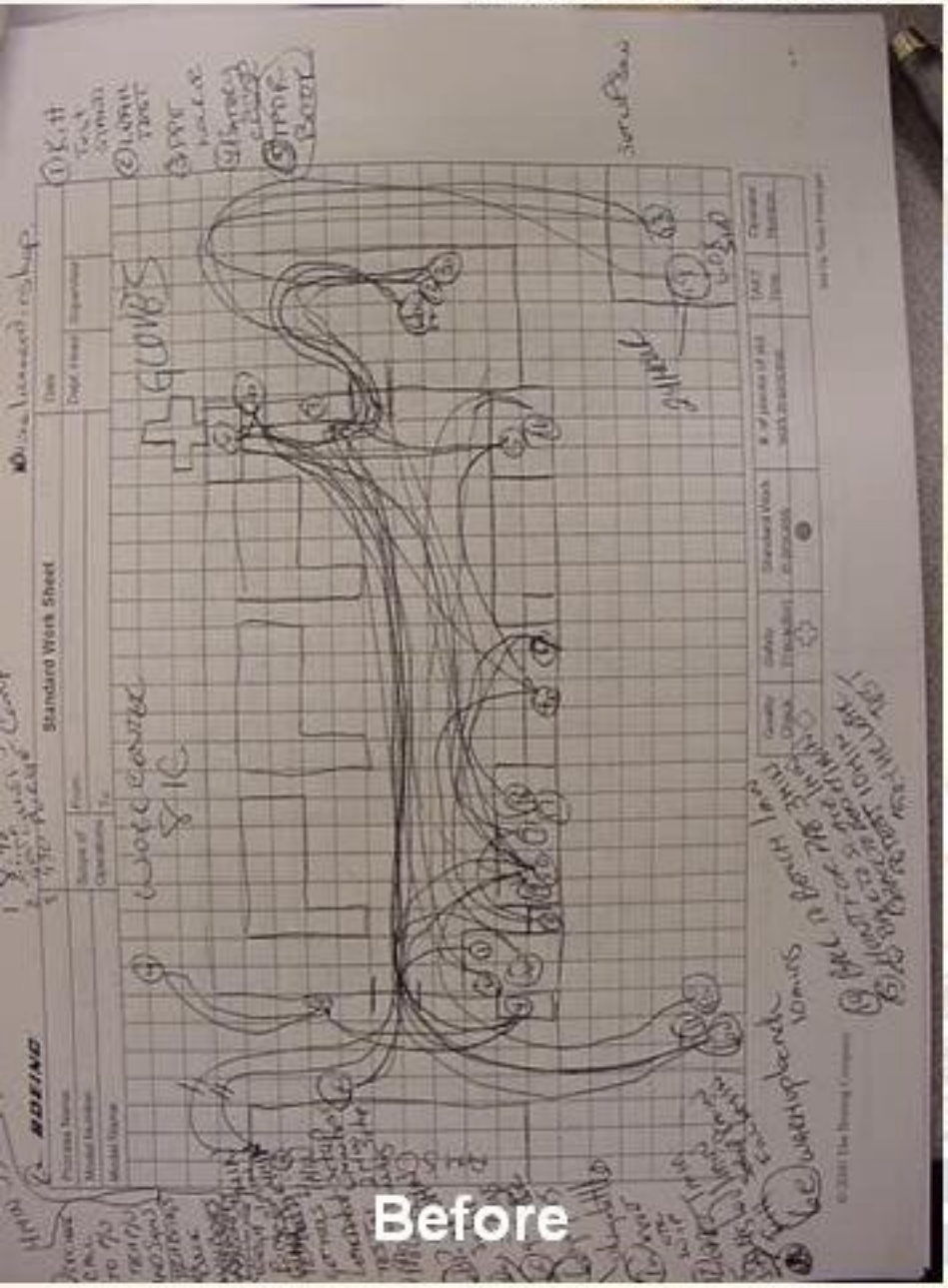


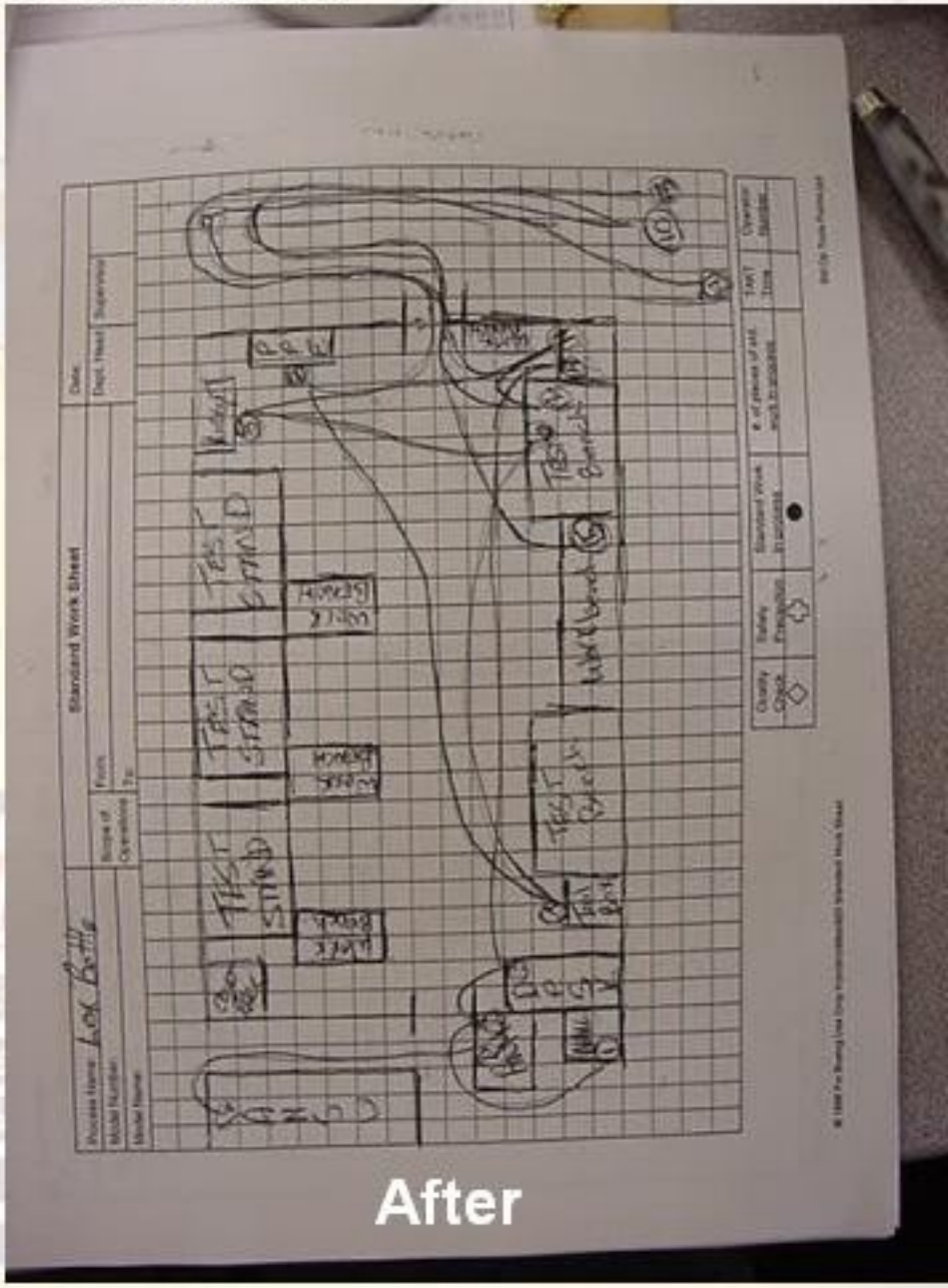
BEFORE

AFTER

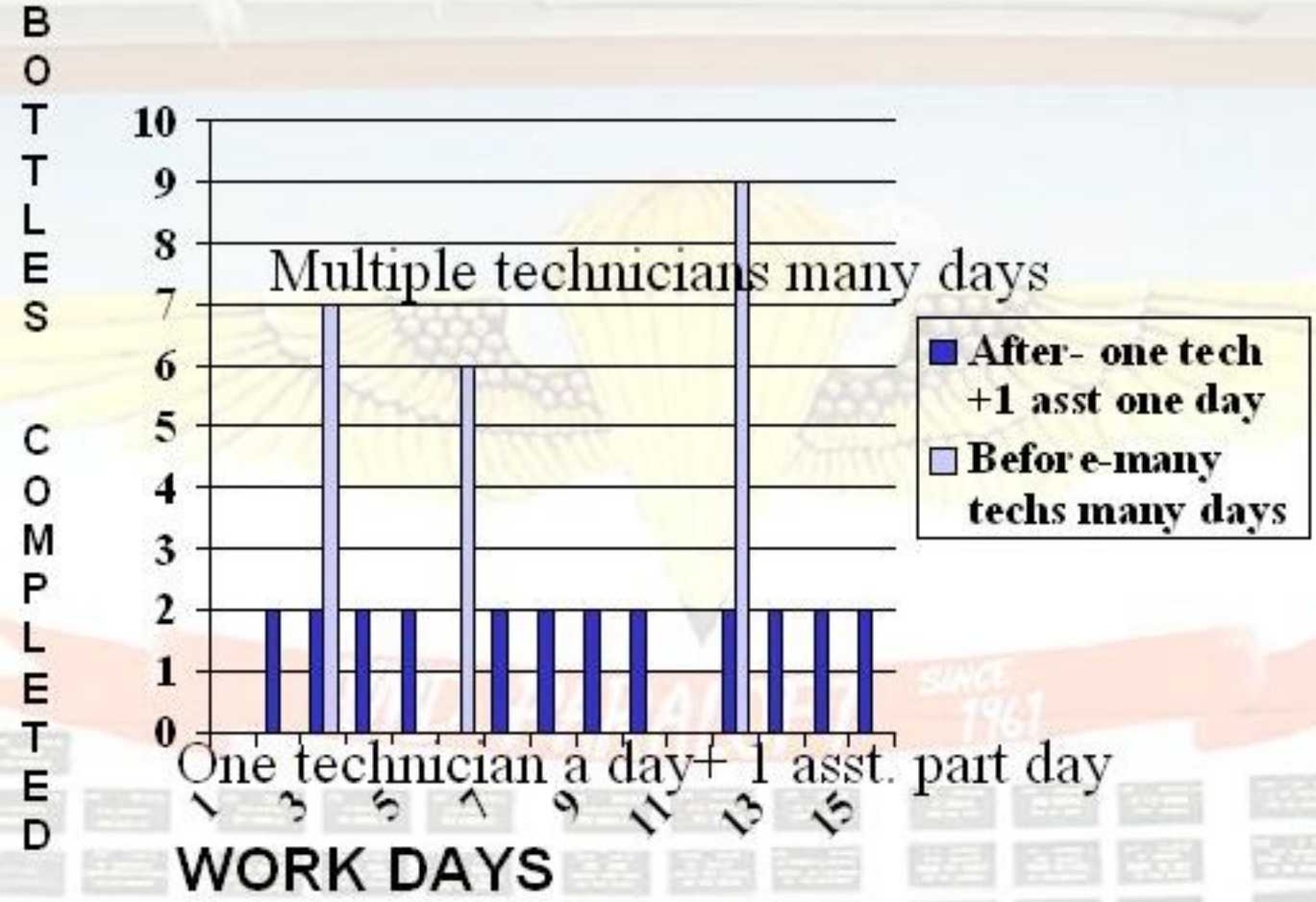
Establishing work cells identifies process flow

# Lox Converter Process Flow



# LOX BOTTLES PROCESSED DAILY




**By leveling the work flow the RFI capacity is increased while allowing other technicians to perform other maintenance.**

900 DIVISION
GROUND SUPPORT EQUIPMENT

# AIMD Lemoore - 900 Division
# PEB/AWP/Supplies

## Major Accomplishments

**PROCESS IMPROVEMENTS**

- Reduced time spent in locating parts through improvements on visual display of locations.
- Developed a well defined storage areas for PEB, AWP and consumable items.
- Discouraged pilfering of stored items on the PEB.
- Implemented kiting for the PON-6 52 Wk PM.

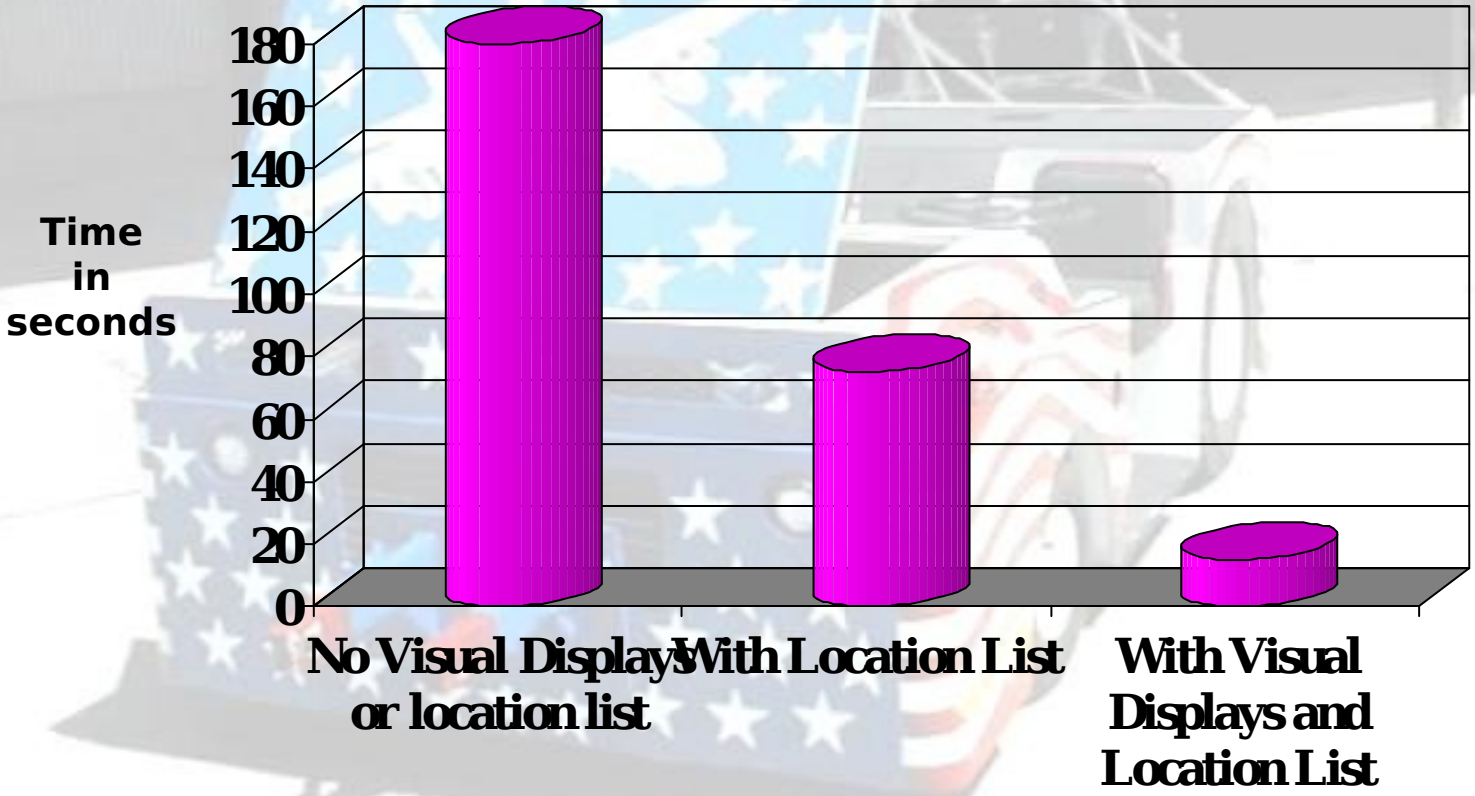
**SHOP ORGANIZATION IMPROVEMENTS**

- Created check out podium for drawing PEB items.

Visual Supplies combined with Shop Organization

- Enhanced safety through purchase of step

# 900 Division PEB/AWP/Supplies



**The visual display of items contained in the drawers creates easy location of parts needed for equipment repair.**

WELL ORGANIZED STORAGE SHELVES AND PM KITS

# 020 Division

## MISSION

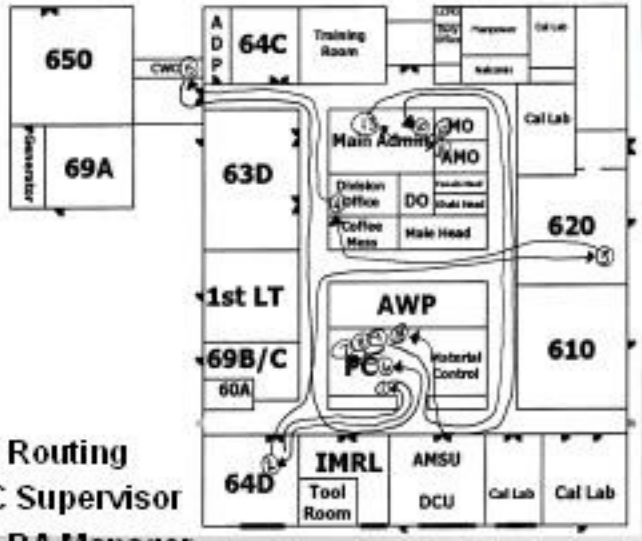
- Improve the current Broad Arrow reporting process and ensure all reports are accurate and timely.

## BENEFITS

- Decreased travel to and from Production Control in the routing process.
- Broad Arrow forms ensure proper documentation is ready for PC BA Manager.
- AMSRR program provides better tracking and accounting of Broad Arrow program.

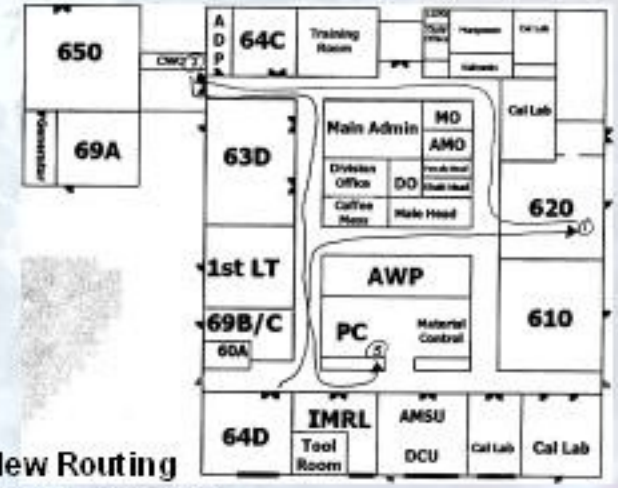
# 020 Division

## Old Routing




- Old Routing
- W/C Supervisor
- PC, BA Manager
- W/C Supervisor
- Div CPO
- Div-O/WO
- PC - LCPO
- MMCPO
- MMCO
- Admin
- AMO
- MO
- Admin
- PC, BA Manager

## New Routing




- New Routing
- W/C Supervisor
- BCPO
- Div-O/WO
- PC, BA Manager
- PC - LCPO
- MMCPO
- MMCO *

- Red = Completed utilizing AMSRR Program.
- * Release Message

# 020 Division

**ACCOMPLISHMENTS**

- **Improved flow of the Broad Arrow routing process.**
- **Improved form's to include all documentation.**
- **Automated forms.**
- **Decreased foot traffic by 50%.**

- **Mr Don Krentz provided the AMSRR program.**
  - **Showed up at right time.**
  - **Improved tracking of Broad Arrows.**

# 040 QUALITY ASSURANCE DIVISION

**Mission**

**Improve the current QA reporting process that assures all reports are accurate and timely.**

**GOALS**

- **IMPROVE THE FOLLOWING:**
  - **NAMDRP REPORTING PROCESS.**
  - **QA AUDIT/MONITOR REPORTING PROCESS.**
  - **SE MISUSE AND ABUSE.**

- **DESCRIBE THE METHOD TO MEASURE THE HEALTH OF THE PROPOSED PROCESS.**

# 040 QUALITY ASSURANCE DIVISION

**ACCOMPLISHMENTS**

- Local Command Procedures Rewritten for:
  - NAMDRP.
  - QA Audits.
  - SE MISUSE & ABUSE.

**BENEFITS OF THE PROPOSED PROCESS**

- Deadlines will be met.
- Quality will improve.
- Improved flow of information within AIMD.
- Bottlenecks will be visible.
- Better trained work force.

99% of NAMDRP reports on time.

Electronic Audit routing. Location of audit known at all times.

# 05A Division AMSU

**ACCOMPLISHMENTS**

- **Developed shop standard operations procedures for supply driver inductions.**
- **Developed a standard operating procedures for loading equipment into NALCOMIS.**
- **Implement a color coded self for appropriate gear for problem gear and what work center the gear goes to.**
- **Developed a shop turn over standard operating procedures for AMSU.**
- **Implement visual controls for any person to induct gear into AIMD.**

# 05A Division AMSU

**BENEFITS**

- **One standard process, reducing wasted time trying to figure out what to do.**
- **Reduced operator cycle time for the induction process.**
- **Increased awareness of the importance of thorough parts accountability.**
- **Increased AMSU Production process flow.**
- **Work center set-up faster and more accounted induction.**

# AIMD Lemoore - Supporting The Fleet

| | PC | QA | 400 | 500 | 600 | 700 | 800 | 900 | AIMD |
|---|---|---|---|---|---|---|---|---|---|
| ExReps | | | | | | | | N/A | |
| DIFM | | | | | | | | N/A | |
| "Y" Code | | | | | | | | N/A | |
| FMC/MC | | | | | | | | | |
| "R" Pool | | N/A | | | | | | | |
| Sailor Power | | | | | | | | | |
| Over All Rating | | | | | | | | | June 2001 |

GO FOR THE GREEN - GO FOR THE GREEN - GO FOR THE GREEN

# AIMD Lemoore - Supporting The Fleet

| | PC | QA | 400 | 500 | 600 | 700 | 800 | 900 | AIMD |
|---|---|---|---|---|---|---|---|---|---|
| ExReps | | | | | | N/A | | N/A | |
| DIFM | | | | | | FDR | | N/A | |
| "Y" Code | | | | | | | | N/A | |
| FMC/MC | | | | | | | | | |
| "R" Pool | | N/A | | | | | | | |
| Sailor Power | | | | | | | | | |
| Over All Rating | | | | | | | | | Jan. 2002 |

GO FOR THE GREEN - GO FOR THE GREEN - GO FOR THE GREEN

**Accelerated Improvement Workshop**
**Leader Certification, November 7, 2001**

Left to Right: CAPT Jeff Wieringa (PMA 265), CDR CJ Jaynes (AIMD OIC), AMC Dan Carmody, AOC Jon Gullette, AOC Bill Svoboda, AZCS Tim Colon, AT1 Tony Beavers, ADC Rick Decker, Mr Jim Young (Boeing) (unavailable for photograph- AEC Richard Frohlich)

# AIMD Lemoore - *The Lean Journey*

## LEAN ROAD AHEAD FOR AIMD LEMOORE

- **Every Division will conduct at least one AIW**
- **Continue Boeing AIW Certification Process for remaining AIMD candidates**
- **Induct the next group of AIW Leader candidates from AIMD**
- **Potential development of USN AIW Certification Process**